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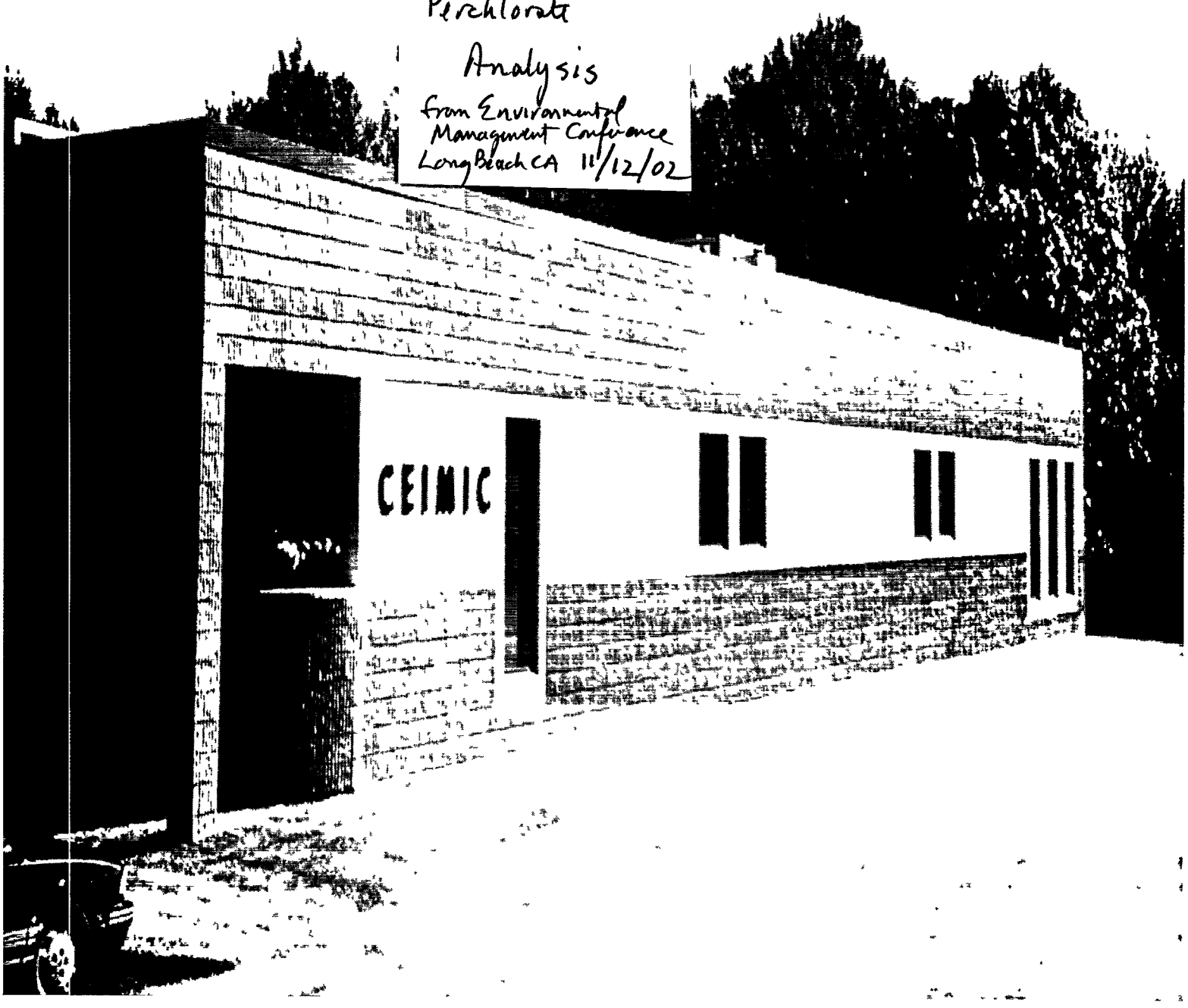
Ceimic Corporation

"Analytical Chemistry for Environmental Management"

Perchlorate Analysis to 1.0 ppb

Perchlorate
Analysis
from Environmental
Management Conference
Long Beach CA 11/12/02



What is Perchlorate?

- Naturally occurring compound
- Manufactured largely as an oxidant in solid propellants
- Contaminant in drinking water that damages the thyroid gland, which controls growth, development and metabolism
- Unregulated by the state or federal government

Overview of Ceimic's Perchlorate Analysis Plan

- Analytical chemistry to evaluate perchlorate samples taken from groundwater to detect perchlorate down to 0.35 ppb, using the most sensitive detection procedures in the country
- Solves fear of unknown – not measuring to EPA's draft risk level of 1.0 ppb may result in doubling costs in future
- Ethical choice

Why Report to **1 ppb**?

- EPA's *Draft Risk Assessment/Toxicological Evaluation* defined 1.0 ppb as safe level for drinking water
- Average perchlorate detection level in groundwater in Bourne, MA
- MADEP recommended pregnant women, infants, children to age 12, and individuals with hypothyroidism not to consume drinking water containing concentrations of > 1.0 ppb.

Why Report to **1 ppb**?

- Uncertainties in EPA toxicological database to evaluate perchlorate effects on humans at these low levels
- EPA's risk assessment does not consider the possibility that infants and fetuses may be more sensitive to reductions in thyroid hormones caused by perchlorate contamination

The Team

- Two Master-Degreed Scientists
- 6 Years Combined Experience on Low-Detection Perchlorate Analyses
- Compliance with EPA Method 314.0 using two independent ion chromatography instruments
- Approved by US EPA in Method 314.0
- Approved as monitoring method for the UCMR (*Federal Register, 2000*)

Business Concept

- **Key technology**
  - Two independent Ion Chromatograph Instruments
- **Business concept & strategy**
  - Accurately and precisely analyze for perchlorate contamination down to a reporting limit of 1.0 ppb for aqueous samples and to a reporting limit of 3.0 ppb for solid samples.

Specifications

- For *aqueous* samples, **MDL is 0.35 ppb** and the **DL is 1.0 ppb.**
- For *solid* samples, **MDL is 2.26 ppb** and the **DL is 3.0 ppb.**
- Analyses are performed with Level IV Quality Assurance and Quality Control Objectives and Level IV Reporting

Competition

Ceimic is the only US EPA-approved laboratory who can measure to below 0.35 ppb for aqueous samples!!

Pricing

- Various pricing options available based on:
  - **Turnaround time (TAT)**
  - **Matrix (eg. solid or aqueous)**
  - **Volume of samples requiring analysis**
  - **Electronic Data Deliverable (EDD) Requirements**

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